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□□□□□□□ Socratic method □□

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Neurosciences human specific intelligence

 Alan Turing，如 Geoffrey Hinton，如 Demis Hassabis AlphaGo

Demis Hassabis deep-learning、reinforcement [16] Nature AlphaGo Zero generic 和 superhuman Geoffrey

Turing Machine Geoffrey Hinton Turing Machine Alan Turing

 Dialogue Concerning the Two Chief World Systems [17]

 The Sceptical of Chemist

 On the Origin of Species

 human specific intelligence big data big data BRAIN Initiative big data human specific intelligence

Big data AlphaGo

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Karl Popper

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Turing Test

ResNet Generative Adversarial Networks、Capsule networks

AI: A Modern Approach driverless Car SAE level 5 human specific intelligence

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Leukotomy、Turing Test □□□□□□ AI（A Modern Approach □□ Wind Tunnel approach）Technological Singularity □"□□□□□□□□□□□□"□□□□□□□□□□ Nature □□ AlphaGo Zero □□□□□ superhuman □□□□□□□□□□□□□□□□□□□□□□□□□□

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□□□ Technological Singularity □ AlphaGo Zero □ superhuman □□□ [24]□

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[1] AI（A Modern Approach □□□ "Aristotle... was the first to formulate a precise set of laws governing the rational part of the mind."(On page 5)□

Galileo Galilei □ Dialogue Concerning the Two Chief World Systems □□□□□□□□□□□□□□□□ □□□□□□□□□□□□

Immanuel Kant □□□ □□□□

Gödel's theorems □□□

□□□ "a <u>precise</u> set of laws governing the rational part of the mind"□

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[4] BRAIN Initiative big data BRAIN Initiative big data

BRAIN Initiative mental diseases anxiety disorders like depression and post-traumatic stress disorder、obesity and eating disorders、bipolar disorder、and mental retardation disorders diseases

BRAIN Initiative personalities mental diseases Big Data

[5] Leucotomy in England and Wales, 1942-1954 9284 41 28 25 2 4

personality intelligence 25 personality intelligence clinical condition 41 28 clinical condition personality intelligence

leucotomy

Renato M.E. Sabbatini Even lobotomy's preponents admitted that only one third of the operated patients would improve, while one-third remained the same, and one-third got worst Leucotomy in England and Wales, 1942-1954 http://www.cerebromente.org.br/n02/historia/lobotomy.htm）。

 one third would improve one-third remained the same clinical condition personality intelligence

personality intelligence leucotomy BRAIN Initiative

[6]

 peer review peer review

AlphaGo Zero superhuman generic human AlphaGo Zero

[7] Cracking Go Deep Blue AlphaGo AlphaGo

[8] http://www.alphago-games.com/，AlphaGo Zero 和 AlphaGo Zero https://www.101weiqi.com/chessbook/player/38348/

[9] AlphaGo Master 的棋谱。AlphaGo Master □□。

[10] http://www.alphago-games.com/，□□Full Strength of Alphago Zero, i.e. Final Form□□□□ 40 Blocks，20 Blocks □□□ Not Full Strength of Alphago Zero，□□□□□□□□□□□□ □ Alphago Zero □□□□□□□□□。

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□□□□□□:"Go gaming is strictly defined within a very small space. Industrial automations are typically designed in well controlled environments, but not strictly defined. Car driving is regulated, but the environment is not well controlled"，□□□□□ □□□。

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□ deep-learning、reinforcement □□□□□□□□□□□□□□□□□□□□□□□□□□□□□ AlphaGo Zero □□□□□□□□□□□□□□□

[17] Dialogue Concerning the Two Chief Word Systems □□□□□□□□□□□ Socratic Method □□□

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[18] □□□□□□□□□□□□□□□□□□ talent pool □□

□□ talent pool □□□

[19] Personal computers、Internet、smartphones □□□ digital cameras、GPS、smart wearables、virtual reality、quantum computer □□□□□□□□□

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